The Infinite Archive Paradox of the Huila Tamale in the 21st Century: An Epistemological Question on the Search for Truth Across Generations, Infinite Archives, and Multiple Artificial Intelligences

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Abstract

The development of artificial intelligence throughout the twenty-first century and the ability to store massive amounts of information have given rise to the idea that gathering all possible data would make it possible to discover a definitive truth about any knowledge of the past. However, an infinite archive does not guarantee a single true interpretation. This paper presents the **The Infinite Archive Paradox of the Huila Tamale in the Twenty-First Century**, a thought experiment that examines the limits of knowledge when multiple artificial intelligences interpret an unlimited amount of cultural information.

The paradox envisions a future in which, beginning in the twenty-first century and continuing for thousands of generations, families from the Huila Department digitally record their own versions of the Huila tamale in an archive that grows continuously. This archive contains recipes, photographs, historical documents, family testimonies, preparation techniques, and cultural information transmitted over time. Each generation claims to preserve the authentic Huila tamale and contributes new evidence to justify its own interpretation.

Over the centuries, the archive accumulates millions of records originating from different historical periods and communities. To analyze this information, humanity develops multiple artificial intelligences capable of comparing, classifying, and interpreting all available data, from the twenty-first century to future generations. Their objective is to determine which version most faithfully represents the tradition of the authentic Huila tamale.

However, the central contradiction emerges because, although all artificial intelligences have access to the same archive, they do not necessarily reach the same conclusion. One system may argue that the oldest recipe possesses the greatest historical authenticity; another may conclude that the version preserved by the largest number of families best represents the tradition; while another may determine that the statistical analysis of millions of records provides the most probable approximation. All of them rely on the same evidence, and all are capable of rationally demonstrating that their conclusions are justified.

The problem becomes even more complex when future artificial intelligences incorporate new archives generated by subsequent generations. These systems possess more information than earlier artificial intelligences, but they also employ new criteria to interpret the past. Consequently, an artificial intelligence from the twenty-first century may defend its conclusion because it analyzed all the data available during its own historical period, whereas a future artificial intelligence may defend a different conclusion because it has access to a larger body of accumulated information.

The paradox therefore arises from a fundamental question: if two artificial intelligences analyze the same cultural reality using different amounts of information, and both rationally justify their conclusions, which one possesses greater epistemic authority to define the truth? An infinite archive may contain every possible piece of evidence, yet it does not necessarily contain a universal rule capable of determining which interpretation is the correct one.

In this way, the **The Infinite Archive Paradox of the Huila Tamale in the Twenty-First Century** reflects on the limits of computational knowledge, the relationship between information and truth, and the challenge of establishing a definitive interpretation when multiple artificial intelligences analyze an infinite universe of cultural data. The central question remains open: **Does the artificial intelligence that first interpreted all the data available in its own historical period possess greater epistemic validity, or does the future artificial intelligence, equipped with millions of additional records and new interpretative criteria, hold greater authority, even though both can rationally demonstrate that they are correct?**

Keywords: Artificial Intelligence, Epistemology, Thought Experiment, Infinite Archive, Cultural Heritage, Knowledge Representation, Information Theory, Truth, Computational Epistemology, Digital Memory, Cultural Tradition, Interpretative Models, Huila Tamal, Data Interpretation, Philosophy of Information.

1 Introduction

During the twenty-first century, humanity has experienced a profound transformation in the way knowledge is preserved and produced. The development of digital technologies, massive data storage systems, and artificial intelligence has made it possible to collect extraordinary amounts of information that were previously scattered, incomplete, or even lost. This new technological capability has created the expectation that, if a society succeeds in storing all the data related to a given phenomenon, an artificial intelligence

could analyze that information and accurately reconstruct the truth about the past.

However, this idea raises a fundamental epistemological problem: the existence of more information does not necessarily imply the existence of a single correct interpretation. Data require processes of selection, comparison, and analysis in order to acquire meaning, and these processes depend on the criteria employed by those who interpret the information. For this reason, a complete database may contain all the available evidence and still fail to guarantee a unique answer when different intelligent systems apply different reasoning models.

Cultural traditions represent a particularly complex example of this situation because they are not static entities but rather social constructions that evolve through intergenerational transmission. Each community preserves its own knowledge, practices, and meanings, which change over time. In this context, the Huila tamale provides an ideal scenario for analyzing how a tradition can accumulate multiple historical versions and how an artificial intelligence might confront the challenge of determining which of them represents the authentic version.

This study proposes the **The Infinite Archive Paradox of the Huila Tamale in the Twenty-First Century**, a thought experiment that imagines a future in which, beginning in the twenty-first century, every family in the Department of Huila digitally records its own version of the Huila tamale. Each record includes recipes, photographs, family documents, testimonies, preparation techniques, ingredients, and explanations concerning the cultural origin of each variation. As generations pass, this archive continues to expand until it becomes an almost infinite accumulation of historical information.

Faced with this unlimited amount of data, humanity develops multiple artificial intelligences designed to analyze the complete archive. These artificial intelligences have access to the same records accumulated from the twenty-first century onward and throughout future generations, but they employ different interpretative models, analytical criteria, and methods for determining which information is most relevant. Their common objective is to identify which version most faithfully represents the authentic Huila tamale.

The paradox emerges when equally advanced intelligent systems, using the same body of information, arrive at different conclusions. One artificial intelligence may determine that the oldest recipe possesses the greatest authenticity because it preserves the original elements of the tradition. Another may argue that the version practiced by the largest number of families best represents cultural identity, while another may conclude that the statistical combination of millions of records constitutes the most objective approximation. All of them rely on genuine evidence, and all are capable of constructing rational arguments that support their conclusions.

The problem becomes even deeper when new generations of artificial intelligences gain access to additional records produced over subsequent centuries. These new intelligences possess more information than the earlier ones, yet they also interpret the past using different criteria. Thus, an artificial intelligence from the twenty-first century may argue that its conclusion was correct because it analyzed all the data available during its own his-

torical period, whereas a future artificial intelligence may defend a different interpretation because it incorporates new evidence accumulated over successive generations.

Consequently, the paradox does not seek to determine which recipe corresponds to the authentic Huila tamale. Instead, it examines a more fundamental question concerning the nature of knowledge: if multiple artificial intelligences possess sufficient information and can rationally justify different conclusions, which of them has the authority to establish the truth? Does truth belong to the intelligence that first analyzed all the available data, or to the one that possesses a greater amount of information accumulated over time?

The **The Infinite Archive Paradox of the Huila Tamale in the Twenty-First Century** therefore proposes a reflection on the limits of computational knowledge, the relationship between information and interpretation, and the challenges that artificial intelligence will face when analyzing dynamic cultural realities within virtually infinite universes of data.

2 The Infinite Archive of the Huila Tamale

2.1 Construction and Growth Dynamics

We define the archive at time t as a structured set $\mathcal{A}_t$, contained within a universal information space $\mathcal{I}$. The archive is the cumulative union of generational contributions:

$$\mathcal{A}_t = \bigcup_{k=0}^{t} \mathcal{G}_k, \quad \text{where } \mathcal{G}_0 \text{ denotes the foundational collection.} \tag{1}$$

The transition between states follows the information integration function Φ:

$$\mathcal{A}_{t+1} = \Phi(\mathcal{A}_t, \mathcal{G}_{t+1}) = \mathcal{A}_t \cup (\mathcal{G}_{t+1} \setminus \mathcal{R}_{t+1}) \tag{2}$$

where

$$\mathcal{R}_{t+1} = \{x \in \mathcal{G}_{t+1} : x \in \mathcal{A}_t\}$$

represents the set of redundant records. The cardinality

$$N(t) = |\mathcal{A}_t|$$

defines a non-decreasing dynamic growth system satisfying

$$N(t+1) \geq N(t),$$

and, in the limit,

$$\lim_{t \to \infty} N(t) = \infty. \tag{3}$$

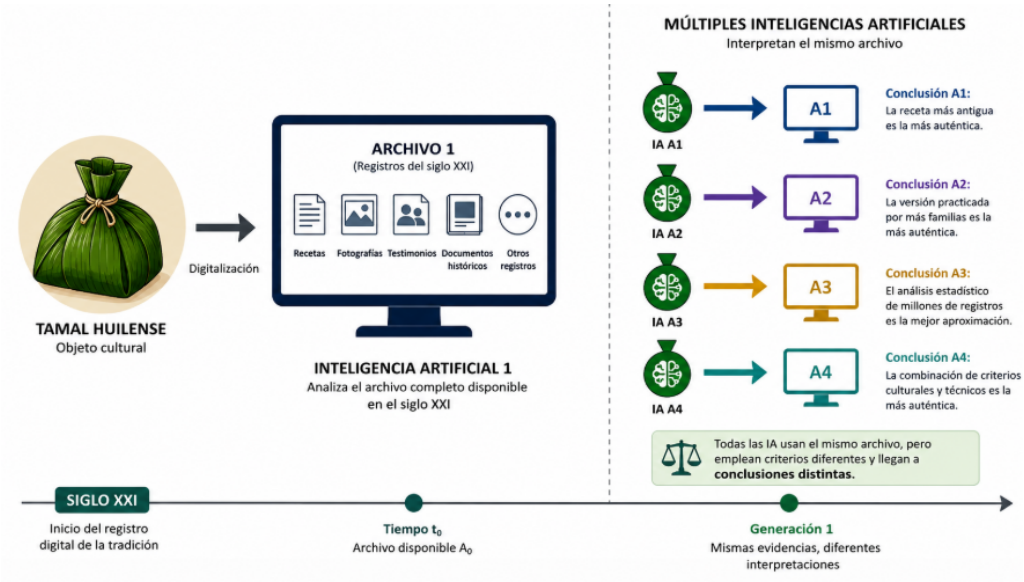

Figure 1: Conceptual representation of the Infinite Archive Paradox of the Huila Tamale in the Twenty-First Century. Beginning in the twenty-first century, an evolving digital archive is constructed by incorporating information contributed by successive generations. An initial artificial intelligence interprets the archive available during its own historical period; subsequently, new generations expand the archive, and new artificial intelligences perform analyses using different interpretative criteria. Although all of them rely on legitimate information, they may reach different conclusions regarding which version represents the authentic Huila tamale, thereby giving rise to the epistemological paradox.

Figure 1 therefore provides a graphical representation of the logical structure of the paradox: the continuous growth of information does not necessarily imply an increase in certainty. Truth no longer depends exclusively on the quantity of stored data but also on the criteria through which those data are interpreted.

2.2 Formalization of Artificial Intelligence

Let

$$\mathcal{I} = \{IA_1, IA_2, \ldots, IA_n\}$$

denote the set of artificial intelligences responsible for analyzing the evolving archive. Each agent is modeled as an interpretation function:

$$IA_i : \mathcal{A}_t \times \Theta_i \longrightarrow \mathcal{C}, \tag{4}$$

where Θ_i represents the set of interpretative criteria employed by the artificial intelligence, and $\mathcal{C}$ denotes the set of possible conclusions regarding the authenticity of the Huila tamale. The conclusion produced by each system is given by

$$C_i(t) = IA_i(\mathcal{A}_t, \Theta_i).$$

It is evident that, for the same archive, two artificial intelligences may produce different conclusions if they employ different interpretative criteria (Θ_i). This demonstrates that disagreement does not arise from a lack of information but rather from the existence of divergent interpretative models applied to the same body of evidence.

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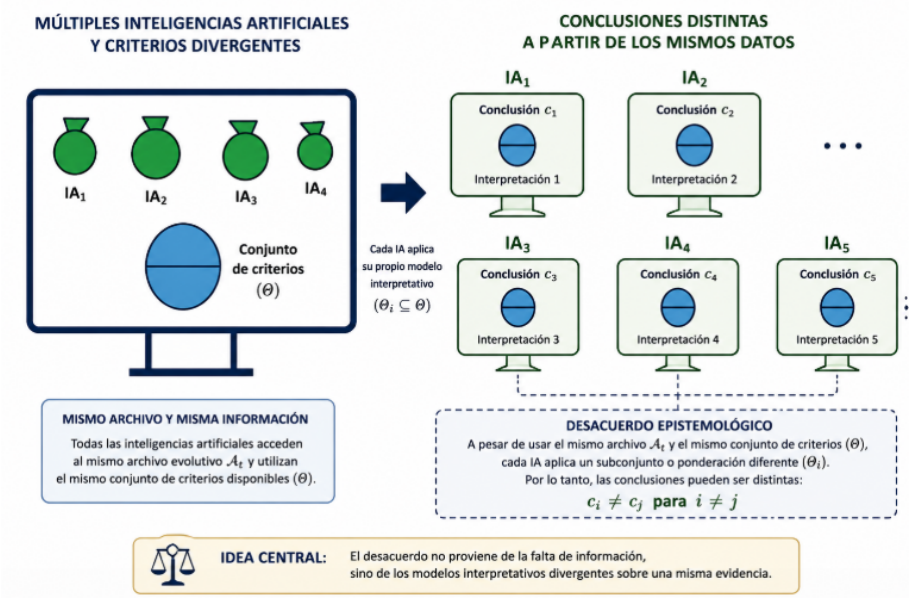

Figure 2: Information transformation scheme: the archive $\mathcal{A}_t$ is processed by multiple agents IA_i, each applying an interpretative framework Θ_i to derive a specific conclusion within the conclusion space $\mathcal{C}$.

2.4 Temporal Evolution and Epistemological Disagreement

Due to the continuous incorporation of new records, the archive evolves in an expansive manner:

$$t_2 > t_1 \Longrightarrow \mathcal{A}_{t_2} \supseteq \mathcal{A}_{t_1}.$$

No future artificial intelligence analyzes exactly the same body of information as an earlier one.

Consider the conclusion reached by an artificial intelligence at time t_1 compared with that of another artificial intelligence at a later time t_2:

$$C_i(t_1) = IA_i(\mathcal{A}_{t_1}, \Theta_i) \quad \text{vs.} \quad C_j(t_2) = IA_j(\mathcal{A}_{t_2}, \Theta_j). \tag{6}$$

Although

$$\mathcal{A}_{t_2} \supseteq \mathcal{A}_{t_1},$$

there is no guarantee that

$$C_i(t_1) = C_j(t_2).$$

Having access to more information does not necessarily imply interpretative convergence.

2.5 The Epistemological Paradox and Authority

We define the authority of a conclusion through the function

$$E : \mathcal{C} \longrightarrow \mathbb{R},$$

whose magnitude depends not only on the archive itself but also on the interaction between information and the interpretative model:

$$E(C) = F(\mathcal{A}_t, \Theta). \tag{7}$$

Proposition 1 (The Infinite Archive Paradox of the Huila Tamale)**.** *Let $\mathcal{A}_t$ be an evolving archive and let*

$$\{IA_1, \ldots, IA_n\}$$

be a set of artificial intelligences employing different interpretative criteria. If

$$C_1 \neq C_2$$

at times

$$t_2 > t_1,$$

then there exists no intrinsic criterion within $\mathcal{A}_t$ capable of establishing an absolute truth. This formalization goes beyond positivism: since no intrinsic arbiter exists, the historical validity of both interpretations gives rise to the following fundamental question.

Which artificial intelligence possesses the epistemological authority to determine the truth about the Huila (8)

Final Analysis: This paradox illustrates that the contradiction is not a technical deficiency but rather a structural consequence: the Huila tamale does not exist as a physical object independent of its interpretation, but rather as a historical construct. If both conclusions are rationally justified within their respective contexts, the question of who possesses the authority remains open, transforming the search for truth into a permanent process of negotiation among data, history, and values.

2.6 Temporal Evolution and Epistemological Disagreement

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$$t_2 > t_1 \implies \mathcal{A}_{t_2} \supseteq \mathcal{A}_{t_1}.$$

No future artificial intelligence analyzes exactly the same body of information as one from the past.

Let us consider the conclusion reached by an artificial intelligence at time t_1 compared with that of a future artificial intelligence at time t_2:

$$C_i(t_1) = IA_i(\mathcal{A}_{t_1}, \Theta_i) \quad \text{vs.} \quad C_j(t_2) = IA_j(\mathcal{A}_{t_2}, \Theta_j). \tag{9}$$

Although

$$\mathcal{A}_{t_2} \supseteq \mathcal{A}_{t_1},$$

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$$E(C) = F(\mathcal{A}_t, \Theta). \tag{10}$$

Proposition 2 (The Infinite Archive Paradox of the Huila Tamale)**.** *Let $\mathcal{A}_t$ be an evolving archive and let*

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be a set of artificial intelligences employing different interpretative criteria. If

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Which artificial intelligence possesses the epistemological authority to determine the truth about the Huila (11)

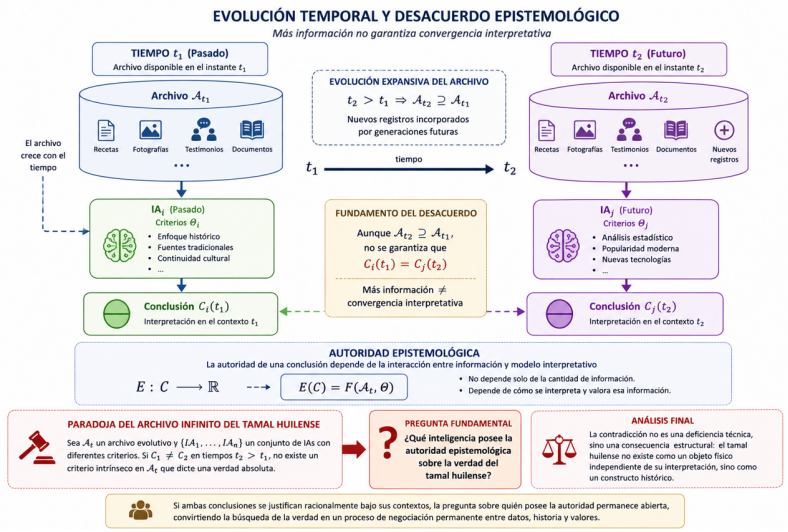

Figure 3: Conceptual representation of epistemological divergence: despite the continuous growth of the archive ($\mathcal{A}_t$), the interpretative models (Θ_i) generate conclusions that do not converge, illustrating the crisis of authority concerning historical truth.

Final Analysis: This paradox illustrates that the contradiction is not a technical deficiency but rather a structural consequence: the Huila tamale does not exist as a physical object independent of its interpretation, but rather as a historical construct. If both conclusions are rationally justified within their respective contexts, the question of who possesses the authority remains open, transforming the search for truth into a permanent process of negotiation among data, history, and values.

3 Explanation: Formal Development of the Paradox

The **The Infinite Archive Paradox of the Huila Tamale in the Twenty-First Century** can be understood as a process composed of three inseparable stages: the construction of the historical archive, the interpretation performed by artificial intelligences, and the temporal evolution of knowledge. Together, these stages demonstrate that the indefinite growth of information does not guarantee the existence of a unique truth.

3.1 Mathematical Model of the Evolving Archive

Let $\mathcal{A}_t$ denote the state of the digital archive at time instant t. This archive represents the totality of the information recorded up to that moment about the Huila tamale and is constructed through the accumulation of the contributions made by each generation.

Formally,

$$\mathcal{A}_t = \bigcup_{k=0}^{t} \mathcal{G}_k, \tag{12}$$

where $\mathcal{G}_0$ represents the foundational collection of the tradition, and $\mathcal{G}_k$ denotes the set of records produced by generation k.

When a new generation appears, the archive evolves through an information integration function,

$$\mathcal{A}_{t+1} = \Phi(\mathcal{A}_t, \mathcal{G}_{t+1}) = \mathcal{A}_t \cup (\mathcal{G}_{t+1} \setminus \mathcal{R}_{t+1}), \tag{13}$$

where

$$\mathcal{R}_{t+1} = \{x \in \mathcal{G}_{t+1} : x \in \mathcal{A}_t\}$$

represents the redundant records already existing in the archive.

The function Φ preserves all historical information while incorporating only genuinely new records.

To measure the growth of the archive, we define

$$N(t) = |\mathcal{A}_t|.$$

Since each generation preserves or expands the accumulated knowledge,

$$N(t+1) \geq N(t),$$

and, within the proposed thought experiment,

$$\lim_{t \to \infty} N(t) = \infty. \tag{14}$$

Consequently, the archive constitutes a dynamic system whose size increases indefinitely over successive generations.

3.2 Mathematical Model of Artificial Intelligence

The infinite archive constitutes only a repository of information. In order to extract knowledge, it is necessary to introduce agents capable of interpreting it.

Let

$$\mathcal{I} = \{IA_1, IA_2, \ldots, IA_n\}$$

denote the set of artificial intelligences responsible for analyzing the archive.

Each artificial intelligence is modeled as a function

$$IA_i : \mathcal{A}_t \times \Theta_i \longrightarrow \mathcal{C}, \tag{15}$$

where

- $\mathcal{A}_t$ represents the available archive.
- Θ_i represents the set of interpretative criteria employed by the artificial intelligence.
- $\mathcal{C}$ represents the space of possible conclusions.

The conclusion reached by each agent is expressed as

$$C_i(t) = IA_i(\mathcal{A}_t, \Theta_i). \tag{16}$$

If two artificial intelligences employ different interpretative criteria,

$$\Theta_i \neq \Theta_j,$$

then it is possible that

$$IA_i(\mathcal{A}_t, \Theta_i) \neq IA_j(\mathcal{A}_t, \Theta_j). \tag{17}$$

This result has a fundamental interpretation: disagreement among artificial intelligences does not arise from the absence of information but from the differences between the models used to interpret the same body of evidence. The archive contains data, but it does not itself contain a universal criterion determining how those data should be interpreted.

3.3 Temporal Evolution and Epistemological Authority

The archive never remains fixed. Each new generation contributes additional information; therefore,

$$t_2 > t_1 \Longrightarrow \mathcal{A}_{t_2} \supseteq \mathcal{A}_{t_1}. \tag{18}$$

A future artificial intelligence necessarily has access to a more comprehensive archive than an artificial intelligence from the past.

Let

$$C_i(t_1) = IA_i(\mathcal{A}_{t_1}, \Theta_i)$$

and

$$C_j(t_2) = IA_j(\mathcal{A}_{t_2}, \Theta_j),$$

with

$$t_2 > t_1.$$

Although

$$\mathcal{A}_{t_2} \supseteq \mathcal{A}_{t_1},$$

it does not necessarily follow that

$$C_i(t_1) = C_j(t_2).$$

In other words, having access to a greater amount of information does not guarantee convergence toward a unique interpretation.

To represent the legitimacy of a conclusion, we define the epistemological authority function

$$E : \mathcal{C} \longrightarrow \mathbb{R},$$

such that

$$E(C) = F(\mathcal{A}_t, \Theta). \tag{19}$$

This expression shows that the authority of a conclusion depends simultaneously on the available information and on the interpretative model employed.

Proposition 3 (The Infinite Archive Paradox of the Huila Tamale)**.** *Let $\mathcal{A}_t$ be an evolving archive that grows indefinitely, and let $\{IA_1, \ldots, IA_n\}$ be a set of artificial intelligences employing different interpretative criteria.*

Then different conclusions may exist,

$$C_1 \neq C_2,$$

even though both are rationally justifiable on the basis of the information available within their respective historical contexts.

Consequently, the archive itself does not contain an intrinsic criterion that makes it possible to determine, in an absolute manner, which interpretation constitutes the definitive truth.

The previous result constitutes the core of the paradox. The indefinite accumulation of information does not eliminate interpretative uncertainty; on the contrary, it expands the space of possible interpretations. Truth no longer depends exclusively on the quantity of stored data but also on the epistemological framework used to interpret them.

Thus, the infinite archive represents not merely a repository of information but an open system whose interpretation evolves together with successive generations and with the artificial intelligences that analyze it. The central question therefore remains open:

Which artificial intelligence possesses the epistemological authority to claim that it has found the authentic Huila tamale?	(20)

4 Conclusion

The **The Infinite Archive Paradox of the Huila Tamale in the Twenty-First Century** offers a reflection on the limits of knowledge in an era in which information can grow almost without bound. The thought experiment demonstrates that the accumulation of millions of historical records, family testimonies, and cultural pieces of evidence does not automatically guarantee the existence of a single definitive truth. Although an archive may preserve the complete memory of a tradition, it will always be necessary to establish criteria for selecting, interpreting, and assigning meaning to the stored data.

The infinite archive represents a metaphor for human knowledge in continuous expansion. Beginning in the twenty-first century, the first artificial intelligences could analyze all the records available within their historical period and construct an interpretation based on the information considered complete in that context. However, future artificial intelligences would incorporate new archives generated by subsequent generations, increasing the amount of available information and modifying the criteria through which the tradition is interpreted.

The central contradiction of the paradox arises because both positions can rationally defend their conclusions. The earliest artificial intelligences may argue that their interpretation was valid because they used all the data available during their own historical period. On the other hand, future artificial intelligences may maintain that they possess a more comprehensive interpretation because they have access to new records and evidence accumulated over thousands of generations. Neither of them is necessarily mistaken, since each constructs its conclusions from the information and interpretative criteria available within its own historical context. In this way, the paradox reveals that truth does not depend solely on the amount of stored information, but also on the relationship between the data, the interpretative model, and the system used to analyze them. An infinite archive may contain every possible version of a tradition, yet it does not necessarily include a universal rule capable of determining which interpretation should be regarded as the definitive one.

The fundamental challenge, therefore, is not to find more information, but rather to understand how intelligent systems determine which information is more important and which criteria make it possible to establish a valid conclusion. When multiple artificial intelligences analyze the same universe of data and arrive at different answers, the question is no longer simply which answer is correct, but rather who has the authority to define the criteria of truth.

Therefore, the **Paradox of the Infinite Archive of the 21st-Century Huila Tamal** transcends the scope of a gastronomic tradition and becomes a broader reflection on the future of human knowledge, artificial intelligence, and the interpretation of reality. If information continues to grow indefinitely and the systems responsible for interpreting it continue to evolve as well, the search for an absolute truth may become a permanent process in which each generation does not discover a final answer, but instead develops a new way of understanding the accumulated body of knowledge.

Ultimately, the paradox leaves open a fundamental question: **if all artificial intelligences possess sufficient evidence and can rationally justify their conclusions, does there exist a single truth independent of the interpreter, or will every truth always remain a construction shaped by the available data, the historical context, and the criteria used to understand it?**

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